PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P27048PC00/RR	**FOR FURTHER ACTION**	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/NL 03/00860	International filing date *(day/month/year)* 04.12.2003	Priority date *(day/month/year)* 04.12.2002
International Patent Classification (IPC) or both national classification and IPC E01H11/00		
Applicant KINZO B.V. et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
03.06.2004	14.03.2005
Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Kerouach, M Telephone No. +49 89 2399-7285

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.: PCT/NL 03/00860

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

3-6	as originally filed
1, 2, 2a	received on 24.02.2005 with letter of 24.02.2005

Claims, Numbers

1-12	received on 24.02.2005 with letter of 24.02.2005

Drawings, Sheets

1/3-3/3	as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

   These elements were available or furnished to this Authority in the following language: , which is:

   ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).

   ☐ the language of publication of the international application (under Rule 48.3(b)).

   ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

   ☐ contained in the international application in written form.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority in written form.

   ☐ furnished subsequently to this Authority in computer readable form.

   ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

   ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

   ☐ the description, pages:

   ☐ the claims, Nos.:

   ☐ the drawings, sheets:

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. The following documents are referred to in this report:
   - **D1**: DE 90 00 712 U (RICHARD RUPPRECHT) 29 March 1990 (1990-03-29)
   - **D2**: DE 298 22 658 U (KNESE HERMANN) 4 March 1999 (1999-03-04)
   - **D3**: FR-A-1 345 739 (RAYMOND ANGENEAU) 13 December 1963 (1963-12-13)
   - **D4**: DE 195 05 156 A (MATTHIES HANS JUERGEN) 22 August 1996 (1996-08-22)

2. Document **D2** is considered to represent the most relevant state of the art.

2.1 **D2** discloses (cf. page 1, lines 1-3, figure 1) a rotary device for removing weeds from joints in a paved area, comprising:
   - a) an elongate frame 2 which is provided with a handle 8;
   - b) a drive unit 4 mounted on the frame 2;
   - c) a brush element 6 which is connected to the drive unit 4 in such a manner that it can be driven in rotation about an axis of rotation which extends substantially in a direction which is transverse with respect to the frame 2; and
   - d) a guide wheel 42 couped to the frame 2, the guide wheel 42 and the brush element 6 being provided on either side of the bottom end of the frame 2 (cf. figure 1),
   - e) wherein the distance between the guide wheel 42 and a centre axis at the frame 2 is at least double the distance between the brush element 6 and the centre axis of the frame 2 (cf. figure 1),
   - f) and wherein the drive unit 4 is provided in the vicinity of the bottom end of the frame 2.

   Thus, the combination of features of independent claim **1** is entirely disclosed by the device described in **D2**. Therefore, the subject-matter of claim **1** is **not new** (Article 33 (2) PCT).

   Remark to e): **D2** discloses on page 6, paragraph 3, that the angle between the bar 12 and the bottom part of the frame comprising the brush element 6 and the guide wheel 42 can be pivotally adjusted around point 15 (cf. figure 1), meaning that at least some of the variants disclosed thereby verify point e).

2.2. The combination of the features of dependent claim **2** appears to be neither known from, nor rendered obvious by, the cited prior art. Indeed, none of the cited documents mentions that the weight of the drive unit should be supported substantially by the brush element and only to a slight extent by the guide wheel to ensure that the brush element presses the ground with a higher pressure, reducing therefore the effort made by the user.

2.3. Dependent claims **4** to **12** do **not** appear to contain any additional features which, in combination with the features of any claim to which they refer, with exception of claims **2** and **3**, are either **new** or involve an **inventive** step with respect to the prior art named in the present report (Article 33(2) and (3) PCT).

The reasons therefore are that the additional features of the said claims are ....

- either directly known from document **D2**,
- or are a combination of features obvious to the man skilled in the art in consideration of the disclosure of the prior art named in the present proceedings,
- or they concern only minor modifications which lie within the normal practice of the man skilled in the art.

In particular, reference is made to the following:

Claims **4,5,11**	cf. **D2**	Even if no distance is disclosed in **D2**, it is considered that in view of figure 1, the distances according to claims **4, 5** and **11** would be obvious choices of the skilled man.
Claim **6**	cf. **D2**	Figure 1
Claims **8,9,10**		Those claims are considered to contain just simple constructional features lying within the technical abilities of the skilled person or being already known from the cited prior art.
Claim **12**	cf. **D2**	Figure 1

3. The subject-matter according to any of claims **1** to **12** is industrially applicable (Article 33 (4) PCT).

P27048PC00/RR/W

Enclosure to our letter dated 24 February 2005 PCT/NL2003/00860 Kinzo B.V.

NEW INTRODUCTION TO THE DESCRIPTION

Title: Rotary device for removing weeds from joints in a paved area

The invention relates to a rotary device for removing weeds from joints in a paved area in accordance with the preamble of claim 1.

The professional removal of weeds from joints of a paved area involves the use of heavy steerable machines which are provided with one or more rotating cup-like steel brushes with vertical axes of rotation. On account of their size and cost, machines of this type are not suitable for home use.

Individuals generally remove weeds from joints in paved areas around the house and in the garden manually, using a scraper or blade, optionally attached to a shank with a handle. This is heavy, time-consuming and exhausting work, and the results often leave something to be desired. Therefore, use is often also made of weedkillers, which is environmentally unfriendly.

A device in accordance with the preamble of claim 1 is known from DE-U 90 02 359, which shows a weed-removing device having a shank provided with a handle and, at its bottom end, a transverse rod which at one end is provided with a support wheel and at the other end is provided with a wire brush. By means of a distributor belt, the wire brush is driven by an electric motor located a certain distance above the transverse rod.

A drawback of this known weed-removing device is that it is relatively difficult to handle. In particular its lateral stability leaves something to be desired, the device having the tendency to veer sideways, making it difficult to correctly align the wire brush above the joint which is to be cleared. Furthermore, a relatively high compressive force has to be exerted on the shank in order for the weeds to be successfully removed from the joints.

Another weed removing device is known from DE-U 90 00 712, which in figure 3 discloses an embodiment having a shank provided with a handle and, at its bottom end, a large support wheel at one side of the shank and a relatively small wire brush at the other side of the

shank. The wire brush is driven by a pneumatic drive by means of a distributor belt, which pneumatic drive is positioned somewhat above the middle of the shank at the side of the support wheel.

A drawback of this known weed removing device is that it is also relatively difficult to handle. In particular it is difficult to keep the wire brush correctly aligned above the joint which is to be cleared. Furthermore, a relatively high steering force and compressive force needs to be exerted on the shank in order to keep a proper alignment and brushing force respectively.

The object of the present invention is to at least partially overcome the abovementioned drawbacks and/or to create a usable alternative. More particularly, it is an object of the invention to provide a simple device which allows weeds to be removed in an environmentally friendly, more comfortable way as well as quickly and efficiently using a manually operable device which makes use of a simple rotating brush element mounted on a drive unit.

This object is achieved by a rotary device according to claim 1. The rotary device comprises an elongate frame which is provided with a handle and on which is mounted a drive unit, a brush element which is driven by the drive unit, and a guide wheel located at a distance from the brush element. The guide wheel is in this case positioned such that the distance between the centre of the guide wheel and the centre of the frame is at least double the distance between the centre of the frame and the centre of the brush element. The drive unit is provided in the vicinity of the bottom end of the frame. This arrangement means that a user advantageously has to exert less force on the frame, and also it is easier to keep the brush element manoeuvred into the joint which is to be cleared. This considerably improves the ease of use as well as the results which can be achieved with the rotary device.

In a particular embodiment, the drive unit is arranged in such a manner that its centre of gravity is located closer to the brush element than to the guide wheel, more particularly more than twice as close. This advantageously ensures that the weight of the drive unit is substantially supported by the brush element and only to a slight extent by the guide wheel. As a result, the brush element presses on the paving joint with maximum pressure derived from the weight of the drive unit and the weight of the frame. Consequently, a user may

exert less compressive force on the frame.

Further preferred embodiments are defined in the subclaims.

The invention will be explained in more detail with reference to exemplary embodiments in the appended drawing, in which:

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[Follows original description page 3 line 1]

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Enclosure to our letter dated 24 February 2005
PCT/NL2003/00860
Kinzo B.V.

AMENDED CLAIMS

1. Rotary device for removing weeds from joints in a paved area, comprising:
- an elongate frame (22) which is provided with a handle (23);
- a drive unit (24) mounted on the frame (22);
- a brush element (25) which is connected to the drive unit (24) in such a manner that it can be driven in rotation about an axis of rotation which extends substantially in a direction which is transverse with respect to the frame (22); and
- a guide wheel (28) coupled to the frame (22),

the guide wheel (28) and the brush element (25) being provided on either side of the bottom end of the frame (22),
characterized in that
the distance (x) between the guide wheel (28) and a centre axis of the frame (22) is at least double the distance (y) between the brush element (25) and the centre axis of the frame (22), and in that the drive unit (24) is provided in the vicinity of the bottom end of the frame (22).

2. Rotary device according to claim 1, in which the centre of gravity (z) of the drive unit (24) is positioned closer to the brush element (25) than to the guide wheel (28).

3. Rotary device according to claim 2, in which the distance between the guide wheel (28) and the centre of gravity (z) of the drive unit (24) is at least double the distance between the brush element (25) and the centre of gravity (z) of the drive unit (24).

4. Rotary device according to one of the preceding claims, in which the distance (x) between the guide wheel (28) and the centre axis of the frame (22) is greater than 10 centimetres.

5. Rotary device according to one of the preceding claims, in which the distance (y) between the brush element (25) and the centre axis of the frame (22) is less than 5 centimetres.

6. Rotary device according to one of the preceding claims, in which the output drive shaft of the drive unit (24) is positioned substantially at right angles to the axis of rotation of the brush element (25).

7. Rotary device according to claim 6, in which the output drive shaft of the drive unit (24), as seen in the transverse direction, extends substantially at the centre axis of the frame (22).

8. Rotary device according to one of the preceding claims, in which a safety guard (30) is provided around part of the brush element (25), which safety guard (30) extends over more than half the outer circumference of the brush element (25).

9. Rotary device according to claim 8, in which the safety guard (30) is provided, on its rear-facing side, with a mud flap (31).

10. Rotary device according to one of the preceding claims, in which the frame (22) is of adjustable length.

11. Rotary device according to one of the preceding claims, in which the distance (x+y) between the guide wheel (28) and the brush element (25) is greater than 15 centimetres.

12. Rotary device according to one of the preceding claims, in which the drive unit (24) has its output drive shaft ending at the axis of rotation of the brush element (25).